

What is claimed is

1. Method for determining the contour of a recess in a piece of material, which is worked into the material by means of a tool, in particular in a piece of bone, wherein the position of the piece of material in space is established by a navigation system, the position of the tool in space is established by a navigation system, the respective position of the tool in relation to the piece of material is determined from the position data obtained in this manner, during the machining of the piece of material with the tool, the relative positions of the tool in relation to the piece of material are stored and the prepared contour on the piece of material is determined from extreme values of these relative positions with respect to a fixed reference position of the piece of material.
2. Method according to Claim 1, wherein the prepared contour is visually displayed.
3. Method according to Claim 1, wherein the difference of the contour of the prepared recess determined in this manner from a predetermined contour is determined at different locations of the contour.
4. Method according to Claim 3, wherein the differences determined in this manner at different locations of the prepared recess are visually displayed.
5. Method according to Claim 4, wherein the same differences at different locations of the prepared recess are displayed in the same manner.
6. Method according to Claim 5, wherein the same differences are displayed in the same colour.

7. Method according to Claim 2, wherein an image of the piece of material is superposed on the image of the contour of the recess or of the detected difference.
8. Method according to Claim 5, wherein an image of the piece of material is superposed on the image of the contour of the recess or of the detected difference.
9. Method according to claim 1, wherein from the determined extreme values of the relative position, a warning signal is generated when these extreme values exceed specific given maximum values.
10. Device for determining the contour of a recess in a piece of material with a tool for working the contour into the piece of material, wherein the piece of material and the tool are respectively firmly connected to a marking element a stationary navigation system is provided, which establishes the position of the two marking elements and thus the position of the piece of material and the tool in space, an arithmetic unit with memory is provided, which from the position data obtained in this manner determines the respective position of the tool in relation to the piece of material, stores the relative positions of the tool in relation to the piece of material during machining of the piece of material by the tool, and determines the prepared contour on the piece of material from extreme values of these relative positions with respect to a fixed reference position of the piece of material.
11. Device according to Claim 10, wherein a display device is provided which visually displays the prepared contour.
12. Device according to Claim 10, wherein the arithmetic unit with memory determines the difference of the contour of the prepared recess determined in this manner from a predetermined contour at different locations of the contour.

13. Device according to Claim 12, wherein the arithmetic unit with memory visually displays the differences determined in this manner at different locations of the prepared recess.
14. Device according to Claim 13, wherein the arithmetic unit with memory displays the same differences at different locations of the prepared recess in the same manner.
15. Device according to Claim 14, wherein the arithmetic unit with memory displays the same differences in the same colour.
16. Device according to Claim 10, wherein the arithmetic unit with memory superposes an image of the piece of material on the image of the contour of the recess or of the detected difference.
17. Device according to Claim 12, wherein the arithmetic unit with memory superposes an image of the piece of material on the image of the contour of the recess or of the detected difference.
18. Device according to Claim 10, wherein from the determined extreme values of the relative position, the arithmetic unit with memory generates a warning signal when these extreme values exceed specific given maximum values.